



Original communication

Violence against physicians in training. A Romanian perspective

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ABSTRACT

The main purpose of this study was to assess whether there are differences between perceived and actual aggressions directed towards medical trainees from different medical specialties and different stages of medical training, and to characterize various types of aggressions against physicians in training in Romania.

A multi-institutional survey was conducted in order to assess the prevalence of perceived and actual violence during medical residents; it included a total number of 384 medical residents from various specialties.

Thirty two cases declared perceived physical aggression, most often in psychiatry. Actual physical aggression was 48% higher compared to perceived physical aggression. A similar situation occurred for sexual harassment, with only 9 perceived and 65 actual cases (an increase of 722%). Psychological abuse was the easiest to identify by the physicians in training, as the difference between perceived and actual aggression was minimal (202 and 205 respectively).

The degree of perceived violence against physicians in training was much lower than the actual prevalence of the phenomenon, especially for physical and sexual types. This decreased awareness may lead to a failure in taking necessary safety measures and may subsequently increase the severity and consequences of the violent acts directed towards them.

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1. Introduction

Aggression against physicians became a serious problem over the past few decades, as an increasing number of physicians were attacked, and even killed each year. The mean rate of non-fatal assaults (actual aggression) against physicians in the US is 8.3 per 10,000 workers, more than four times higher than all private sector industries (2 per 10,000).¹ Ayrancy found verbal/emotional abuse in 69.5% of the physicians included in his study, and specific threats in 53.2%.² Cook et al. reported psychological abuse to occur in 93.4% of the trainees, and physical abuse in 19.6%.³ Li et al. reported a cumulative percentage of 91% of residents that had suffered any kind of aggression.⁴ If more experienced physicians “have an eye” for patients with aggressive behaviors, and are therefore more capable of avoiding violent acts, this is not the case for physicians in training.⁵ Aggressive behaviors are known to vary depending upon the seniority of the residents; for example Li et al. found senior residents to be more prone to verbal and physical aggressivity, the

main reason being the fact that they begin to take increased responsibility for the patient's care.⁴ The outcomes of aggression are numerous and with potentially severe consequences for the trainee (decreased self-esteem, diminished working capacity, physical injuries from mild to disfigurement, or even death, absenteeism, changes in the workplace, and so on), the perpetrator (avoidance by other health-care workers, legal consequences, physical restraints), other patients (fear of patients may lead to mistakes, especially in early stage trainees), and the employer (lawsuits, loss of productivity owing to absenteeism or decreased efficiency).⁶ As shown above, previous studies revealed a high variability regarding the types of aggressive acts against physicians depending upon specialty, year of study, geographical location, sex, causes, what constitutes violence and what not as seen by the physicians, and so on. Studies regarding the phenomenon of violence against physician in general, and against physicians in training in particular have not been published for Romania. There have been numerous cases, presented in media, in which physician or other medical personnel was aggressed by patients, most often associated with drinking⁷ or with psychiatric diseases.⁸ Some cases had lethal consequences; For example in Timisoara, a physician was killed by a relative of a psychiatric patient because he didn't want to prescribe a certain

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drug.⁹ Also, in our clinical medical legal activity we have encountered numerous cases of physicians in training beaten by their patients.

The absence of any data regarding violence against physicians in training in Romania, and the lack of its characterization (most vulnerable groups, types of violence, and so on) affects the potential development of preventive strategies. Therefore, a better characterization of the types of violence against physicians in training, may lead to an increase in awareness and to the development of specialized strategies, aimed toward diminishing this phenomenon.

Our objective was to see whether there are differences between perceived and actual aggressions directed towards the medical trainees between different medical specialties and different stages of medical training, and to characterize various types of aggressions against physicians in training.

2. Material and methods

A multi-institutional survey was conducted by using an online questionnaire, that was optional and anonymous, and could be filled in by each student during his or her Bioethics module, at the Carol Davila University of Medicine and Pharmacy. In Romania, the residency training has a variable period (from three years for Family Medicine/General Practitioners, to seven years for Neurosurgery), and a two-week Bioethics module is mandatory during this period. The residency corresponds partially to the internship status of most countries, in which the medical students enter after a national/regional exam. Only after finishing the residency program they get the license to practice medicine.

Study participants: In the Bioethics modules between December 2010 and June 2011 participated a total number of 724 residents (187 men and 537 women). From them 384 accepted to be included in the study 101 men (response rate 54%) and 283 women (response rate 52.7%). Men included in the study had a mean age of 31.4 ± 5.2 years (range 25–56) whilst women included in the study had a mean age of 30.7 ± 4.3 (range 25–54). The distribution of male subjects is more positively skewed than women (2.38 compared with 1.56) and more leptokurtic (6.69 compared with 2.85). Overall the mean age was 30.9 ± 4.6 . Eleven residents were in their first year of training, 72 in the second, 104 in third, 99 in fourth, 91 in fifth, and 3 in the sixth year of training. The distribution of cases on specialties were: General Practitioners – 77 (20%), Internal Medicine – 53 (13.8%), Psychiatry – 36 (9.4%), Laboratory Medicine (including genetics, anatomical pathology, pharmacology) – 30 (7.8%), Surgery – 28 (7.3%), Pediatrics – 18 (4.6%), Obstetrics-Gynecology – 16 (4.2%), Emergency Medicine and Intensive Care – 15 (3.9%), Others – 111 (28.9%).

The questionnaire consisted of 35 items of which the only ones mandatory were specialty, age, and sex. The aggressions against the trainees were analyzed in two forms: perceived aggression (general, non-specific questions about whether they felt to be the subject of a violent act) and actual aggression (analyzed through targeted questions about specific behaviors that have occurred).

In order to analyze perceived aggression we have asked general questions about whether they have suffered a physical, psychological, sexual, economical or other type of abuse, from the patient or its family, the place where the aggressive acts took place, and the year of residency in which they occurred with a maximum frequency. The respondents were also asked whether they have suffered aggressive acts from another physicians, whether nurses were aggressed more or less frequent than physicians and which medical personnel was more prone to suffer an aggressive act.

In order to analyze actual aggression, in the second half of the questionnaire, was explained in what consisted each type of abuse,

Table 1

Questions analyzing perceived and actual aggression.

Type of aggression	Question	Answer options
Perceived	Have you ever been aggressed by a patient?	Yes/No
	Have you ever been aggressed by the patient's relatives?	Yes/No
	Were you subjected to physical aggression from the patient?	Yes/No
	Were you subjected to psychological aggression from the patient?	Yes/No
	Were you subjected to economical aggression from the patient?	Yes/No
	Were you subjected to sexual aggression from the patient?	Yes/No
	Were you subjected to any other type of aggression from the patient? Please specify	String
	Were you subjected to physical aggression from the patient's relatives?	Yes/No
	Were you subjected to psychological aggression from the patient's relatives?	Yes/No
	Were you subjected to economical aggression from the patient's relatives?	Yes/No
	Were you subjected to sexual aggression from the patient's relatives?	Yes/No
	Were you subjected to any other type of aggression from the patient's relatives? Please specify	String
	Physical aggression patient. Were you:	Yes/No
	- slapped	
Actual	- pushed	
	- hit with the fists	
	- hit with blunt object	
	Physical aggression, patient's relatives. Were you:	Yes/No
	- slapped	
	- pushed	
	- hit with the fists	
	- hit with blunt object	
	Medium severity of suffered physical aggression, on a scale from 1 to 10 was (only if you declared physical aggression in the questions above).	Scale, 1-10
	The most severe physical aggression, on a scale from 1 to 10 was (only if you declared physical aggression in the questions above).	Scale, 1-10
	Psychological threats, patient. Were you:	Scale, 1-5
	- threaten, regarding you physical safety	
	- threaten sexually	
	- threaten, property related	
	- threaten economically	
	- threaten, about contacting the superiors	
	Psychological threats, patient's relatives. Were you:	Scale, 1-5
	- threaten, regarding you physical safety	
	- threaten sexually	
	- threaten, property related	
	- threaten, about contacting the superiors	
	Economical threats, patient. Were you:	Scale, 1-5
	- threaten regarding not paying the salary	
	- threaten regarding the imposition of administrative punishments or malpractice claims	
	- threaten regarding limiting the procedures they can perform	
	Economical threats, patient's relatives. Were you:	Scale, 1-5
	- threaten regarding not paying the salary	
	- threaten regarding the imposition of administrative punishments or malpractice claims	
	- threaten regarding limiting the procedures they can perform	
	Sexual harassment, patient. Were you:	Scale, 1-5
	- verbally harassed	
	- physically harassed	
	- verbally and physically harassed	
	- receiving indecent proposals	

Table 1 (continued)

Type of aggression	Question	Answer options
	Sexual harassment, patient's relatives. Were you: - verbally harassed - physically harassed - verbally and physically harassed \ receiving indecent proposals*)	Scale, 1–5
	For each type of actual aggression an additional question, regarding other types of abuse were used, with an open answer.	

and we asked the trainees to answer a few question about them (if applicable). The severity of physical abuse was quantified using a 10 point Likert scale whilst the types of economical, psychological and sexual were quantified using 5 points Likert scales. In both types of Likert scale the value were directly correlated with the severity (1-absent, 5 or 10 – maximum severity). The use of a 10 points Likert scale for physical abuse was implemented as the values were easy to explain to the respondents in correspondence with the number of care-days, a system of quantifying the traumatic lesions in Romanian medical-legal practice – see¹⁰ for details. For each type of aggression the respondents, besides the specific questions they also had the option to answer freely (using a string type item), where they could detail the aggressive act(s). Psychological abuse was defined as a form of abuse characterized by subjecting another person to a behavior causing psychological trauma (anxiety, chronic depression, etc.).¹¹ Actual psychological abuse (APS) was separated into threats regarding possible physical abuse, sexual threats, property related threats, economic related threats, and threats dealing with contacting the superiors (see Table 1). Actual sexual harassment (ASH) was analyzed by asking questions about the presence of: physical sexual abuse (a contact of any kind), indecent proposals, and verbal harassment. Economical abuse was defined by subjecting another person to financial threats (not paying the salary, threatening with contravention measures or malpractice claims, threats regarding limiting the procedures they can perform). For details see Table 1. The timeframe used in the response scales was the residency period.

The Institutional Review Board approved the study, consent was presumed (filling in the questionnaire was optional), and the study was anonymous. The questionnaires were created using Moodle CMS 2.0, exported in a .csv file, and then imported in a .sav database.

Descriptive statistics were conducted using the SPSS “frequencies” function (means, percentages). In order to test if there is a relationship between two categorical variables was used the Pearson Chi² test. The analysis of reliability between qualitative variables was conducted using the Tukey's test for non-additivity. In order to compare two related samples we have used the Wilcoxon-Signed Rank test.

3. Results

3.1. Overall aggressivity

176 respondents (45.8%) declared they were aggressed at least once by a patient, of which 97 (25.2%) declared to be aggressed a few times, and 13 declared multiple aggressive acts. Male physicians are significantly more often aggressed more than once (Pearson Chi² = 9.214, $p = .027$). 166 respondents (43.2%) declared they were aggressed by the family of the patient, of which 53

(13.8%) declared one event, 99 (25.8%) declared a few events, and 14 (3.6%) declared many events. The distribution between genders is homogenous (Pearson Chi² = 2.078, $p = .556$). Most aggressions occurred within the emergency room (121 cases), followed by hospital floors (68 cases), physician's office (32 cases) and outside the hospital (15 cases). Women physicians in training were significantly more often aggressed in the physician's office (Pearson Chi² = 4.005, $p = .031$); in other places there were no significant difference between genders regarding aggression in various locations. There were no statistically significant differences between patients and their family regarding the aggression in various places.

The aggressive acts were most severe in the first year (86 cases, 22%), followed by second year (64 cases, 17%), third year (40 cases, 13%), fourth year (33 cases, 17%), fifth to seventh (21 cases, 11%). Differences between years are statistically significant (Pearson Chi² = 151.5, $p < .001$). Tukey's test for nonadditivity gave a between items F value of 226.199 ($p < .001$), and a residual nonadditivity F value of 9.203 ($p = .003$).

The aggressive acts occurring in the physician's offices were significantly more frequently in the first year of study with a gradual decrease afterwards (Pearson Chi² = 24.245, $p < .001$). When asked whether nurses are aggressed more or less often than medical residents, 175 (53.7%) considered they are aggressed less often and 151 (46.3%) considered they are aggressed more often, usually psychological (108 subjects, 33.13%), followed by physical (30 subjects, 9.20%), sexual (9 subjects, 2.8%), and economical (4 subjects, 1.23%). From other physicians 78 respondents declared to have suffered psychological abuse, two economical, one sexual and one physical.

3.2. Physical aggression

Perceived physical aggression (PPA) by the patient was declared in 32 cases, and was most often identified in psychiatry trainees with 12 cases out of 35 (34%), followed by general practitioner trainees with six cases out of 75 (8%), and emergency medicine trainees with three cases out of 15 (20%). PPA was also declared by two internal medicine residents, one OG, 1 in Pediatrics, two in Surgery and 5 in the Others category. PPA is highly dependent upon the specialty of the trainees (Pearson Chi² = 39.552, $p < .001$). Tukey's test for nonadditivity gave a between items F value of 590.697 ($p < .001$), and a residual nonadditivity F value of 12123.701 ($p < .001$). See Table 2 for details. PPAs were declared by 15 out of 100 male trainees (15%), and by 6.1% of female trainees (17 out of 279). Male trainees are significantly more often associated with PPA (Pearson Chi² = 7.555,

Table 2
Perceived physical aggression.

Specialty	PPA patients			PPA families		
	No	Yes	% ^a	No	Yes	% ^b
General practitioner	69	6	8.0	72	4	5.3
Internal medicine	50	2	3.8	52	1	1.9
Laboratory	30	0	0.0	30	0	0.0
OG	15	1	6.3	14	2	12.5
Psychiatry	23	12	34.3	36	0	0.0
Pediatrics	17	1	5.6	17	1	5.6
Surgery	26	2	7.1	27	1	3.6
Emergency medicine and ICU	12	3	20.0	14	1	6.7
Others	105	5	4.5	109	1	0.9
Total	347	32	8.4	371	11	2.9

OG = Obstetrics&Gynecology, ICU – intensive therapy.

^a percent of yes from all cases.

^b percent of yes from all cases.

$p = .007$). The PPA from the patient's families was declared by 11 trainees, and is mainly directed towards the general practitioners (four cases out of 75), followed by obstetricians with two cases out of 16. The physical aggression of the patient's relatives is not dependent upon the specialty of the trainee.

Actual physical aggression (APA) was analyzed by asking the trainees questions about specific forms of physical aggression. 46 responded positively to questions about APA, an increase of 48% compared to PPA. The patients pushed the physicians more often than the relatives of the patients (Wilcoxon SRT = -2.887 , $p = .004$). The relatives hit the physician with either fists (Wilcoxon SRT = -2.333 , $p = .02$) or blunt objects (Wilcoxon SRT = -2.985 , $p = .003$) significantly more often than the patients. See Table 3 for details. When asked to grade the overall severity of APA suffered during residency on a scale from 1 to 10, they gave a mean value 3.03, and when asked to grade the most severe APA they gave a mean score of 3.83.

3.3. Psychological abuse

Psychological abuse was the most often identified form of abuse in our study group.

Perceived psychological abuse (PPS) by the patient was declared in 162 cases and was most often declared by emergency medicine residents with 11 cases out of 15 (73.3%), followed by psychiatry trainees with 23 cases out of 35 (65.7%), and obstetrics and gynecology trainees with 8 cases out of 16 (50%). PPS from the patient is highly dependent upon the specialty (Pearson $\chi^2 = 22.623$, $p = .004$). Tukey's test for nonadditivity gave a between items F value of 504.957 ($p < .001$), and a residual nonadditivity F value of 3764.557 ($p < .001$). PPSs were declared by 46 out of 100 out of men trainees (46%), and by 116 out of 279 women trainees (41.5%). There are no statistically significant differences between genders regarding the distribution of PPS. PPS from the relatives of the patient was declared in 159 cases and was most often identified in Pediatrics with 15 positive answers out of 18 subjects (83.3%), followed by Emergency Medicine trainees with 11 positive answers out of 15 (73.3%), Obstetrics and Gynecology trainees with nine positive answers out of 16 (56.2%), and Psychiatry trainees with 19 positive answers out of 36 (52.7%). PPS from the relatives of the patient is highly dependent upon the specialty (Pearson $\chi^2 = 30.752$, $p < .001$). Overall 202 patients declared PPS from the patient, relatives, or both. Details in Table 4.

Actual psychological abuse (APS) was analyzed by asking the trainees questions about specific forms of psychological abuse. 205 trainees positively responded to the questions about APS, a value marginally larger than the one regarding PPS (202 cases). APS was moderate in almost all cases (see Table 5). The most severe and also frequent APSs were considered to be those regarding contacting superiors from both relatives (141 cases, with a mean of 3.51), and patient (188 cases, with a mean of 3.41). APS was significantly more severe from families than patients regarding property related (Wilcoxon SRT = -3.386 , $p = .001$) and economic threats (Wilcoxon SRT = -2.011 , $p = .044$). Details in Table 5.

Table 3
Types of actual physical aggression from the patients and families.

Type of physical aggression	APA, patient	APA, relatives	Z value ^a	Significance
Slapping	3	0	-1.732	.083 ^b
Pushing	24	9	-2.887	.004 ^b
Hit with blunt objects	11	27	-2.985	.003 ^c
Fists	4	18	-2.333	.020 ^c

^a Wilcoxon Signed Ranks Test.

^b Based on positive ranks.

^c Based on negative ranks.

Table 4
Perceived psychological abuse.

Specialty	PPS patients			PPS families		
	No	Yes	% ^a	No	Yes	% ^a
General practitioner	53	22	29.3	53	23	30.2
Internal medicine	31	21	40.4	32	21	39.6
Laboratory	21	9	30	22	8	26.6
OG	8	8	50	7	9	56.2
Psychiatry	12	23	65.7	17	19	52.7
Pediatrics	12	6	33.3	3	15	83.3
Surgery	17	11	39.3	15	13	25.5
Emergency medicine and ICU	4	11	73.3	4	11	73.3
Others	59	51	46.36	70	40	36.4
Total	217	162	42.7	223	159	41.6

OG = Obstetrics&Gynecology, ICU – intensive therapy.

Italics value represents percentages, bold values represents total number of cases, bold italics values represents percentage of yes from all cases.

^a – percent of yes from all cases.

Table 5
Types of actual psychological abuse from the patients and families. Mean = mean value of values attributed using the Likert scales.

Threats	APS, patient	Mean	APS, relatives	Mean	Z value ^a	Significance
Regarding physical integrity	77	2.94	90	3.01	-1.597	.110 ^b
Sexually oriented	99	3.24	87	3.47	-1.170	.242 ^b
Economical	81	3.06	67	3.34	-2.011	.044 ^b
Property-related	70	2.74	74	3.14	-3.386	.001 ^b
Contacting superiors	188	3.41	141	3.51	-1.080	.280 ^b

^a Wilcoxon Signed Ranks Test.

^b Based on negative ranks.

3.4. Sexual harassment

Perceived sexual harassment was identified in only nine cases (all from the patients).

Actual sexual harassment (ASH) was analyzed by asking the trainees questions about specific types of psychological abuse. Sixty-five subjects responded positively to these questions, a 650% increase compared to perceived sexual harassment. The most frequent form of sexual harassment was verbal, from the patients, identified in 47 cases out of 65 (72.35%), followed by verbal from the relatives, identified in 40 cases (61.5%). The most severe sexual harassment was physical, by the patients, with a mean value of 3.53 whilst the least severe one was physical associated with verbal, from the relatives, with a mean value of 2.52 (see Table 6).

3.5. Other types of abuse

Economical abuse was declared in 11 cases. Due to the limited number of cases significant correlations or associations with other parameters were not established.

Table 6
Actual sexual harassment.

ASH	ASH, patient	Mean	ASH, relatives	Mean	Z value ^a	Asympt Sig (2 Tailed)
Indecent proposals	47	2.85	15	2.93	-1.000	.317 ^b
Verbal harassment	24	2.77	40	2.85	$-.535$.593 ^c
Verbal and physical harassment	19	2.58	25	2.52	-1.414	.157 ^b
Physical harassment	15	3.53	24	3.00	$-.520$.603 ^b

^a Wilcoxon Signed Ranks Test.

^b Based on positive ranks.

^c Based on negative ranks.

When asked whether they have suffered other types of abuse, 30 trainees responded positively, of which 29 had declared verbal abuse (strong language, slander), and one suffered from complaints addressed to its supervisor.

4. Discussions

The aggressivity rates obtained in our study are below others (see the Introduction for details). Perceived aggression is much smaller than the actual aggression, especially in cases of sexual harassment and physical aggression, and is almost identical in the case of psychological abuse. This result, associated with the actual number of aggressive acts suggests that:

- The most important type of abuse is psychological, that is also the easiest to identify by the trainees. Similar conclusions were reached by other studies as well.^{12–14} For example Coverdale et al. found that most trainees are likely to be physically intimidated or threatened during the residency, and these are the most distressing types of abuse.¹²
- The fact that actual physical and sexual aggression are much higher compared to perceived physical and sexual aggression suggest that many physical or sexual abuses are not readily identifiable by the trainees, or considered not to be worth mentioning. A high threshold for aggression may act as a protection mechanism for the trainees, but it also leads to diminished anti-aggressive behavior, thus potentially escalating aggressive behavior in some patients, with severe, or even lethal consequences (see the Introduction). Even if not acting against a violent behavior is not characteristic to Romanian trainees, the passive attitude seems extreme; not recognizing them or considering them not worth mentioning might be caused by the fact that a real legal protection does not really exist – a complaint may take years to be solved, and most often without definite results. Therefore it is easier for the physician to let go minor aggressive acts.

Our study showed a lower prevalence of aggression in senior trainees, result that is contradictory to other found in literature. For example Li et al. found senior residents to be statistically more likely to encounter verbal abuse (93 vs 80%), verbal threats (83 vs 51%), physical threats (63 vs 38%), and physical attacks (41 vs 14%); the cause was deemed to be the fact that senior residents begin to take increased responsibility for patient's care, and the interaction with patients and their relatives also increases.⁴ In Romania however the residents have limited responsibilities until finishing their residency, being dependent upon their supervisor in a similar fashion during all their residency training. Increased responsibilities are progressively given to residents in more advanced stages of their trainings but the final interaction with the patient and relatives is usually intermediated through the supervisor (that takes for example the final decision regarding the treatment option, necessary surgery, obtaining the informed consent, informing the patients or the relatives in case of a negative outcome, and so on). Therefore the aggressive acts are more likely to be highly dependent upon the experience of the residents in dealing with difficult patients and their relatives, experience that increases over the years.

The prevalence of violent acts is highly dependent upon the specialty of the trainee. For example, in a nationwide study regarding physical aggression against surgical trainees, Barlow found a total prevalence of 38%¹⁵; Paola et al. found a prevalence of 41% in internal medicine trainees¹⁶; Coverdale reported a 39% rate in psychiatry postgraduates¹²; and Li determined that 50% of the residents in emergency medicine suffered at least one physical

trauma.⁴ For psychological abuse and sexual harassment, percentages reached almost 90% in some studies,¹² with some emergency department (ED) teaching hospitals reporting at least one verbal threat per day.¹⁷ Common sites for assaults were emergency rooms and psychiatric units,^{18–23} but other places have been cited as being associated with a high aggression rate as well. For example, in France, 62% of the general practitioners work in aggressive environments. Hahn, in a review regarding patient and visitor violence in general hospitals found that between 3 and 58% of physicians are aggressed per year.²⁴

The main reasons for the aggressive behavior are: the cultural context, first two or three days after admission,²⁵ increased waiting times,² admission in a public, general hospital,²⁵ night shifts,²⁶ understanding difficulties regarding medical problems,^{26,27} unavailability of the physician,²⁷ difficult discharge procedures,²⁷ women and child care,²⁷ enforced personal care or medical treatment,²⁷ anger directed towards hospital rules and regulations,²⁸ etc.

The scientific literature shows that the highest degree of violence against physicians in training seems to be associated with Emergency Department (ED) and psychiatry residency. A study on ED medical residents and graduates, conducted in California, found that 62% feared for their safety when working in the ER, while 50% believed that the security measures taken in their department were insufficient.^{29–31} A study by Gates et al. found verbal aggression to affect 96% of ED physicians, while physical aggression affected 51%.⁶ ED physicians in general, and trainees, in particular, are at a higher risk for violent acts not only because of the acute nature of disease that may increase patient aggressivity unintentionally, but also because of the severity of the underlying disease, that may lead to aggressive behavior from the families. Factors known to be positively correlated with ER aggression are: male gender, young age, night shift, certain diseases (head trauma, psychiatric disorders),⁶ drugs and alcohol abuse,⁶ gang and domestic aggression, increased waiting times,³¹ family pressure,² and different nationalities (our unpublished data).

Our study confirms these findings, the highest risk being associated with working in the Emergency Departments, more than 70% ED physicians declaring aggressive acts by patients or families, results similar to those obtained by other studies.^{29–31} For details see the Introduction section.

Even though most psychiatry patients are not violent, many studies showed that psychiatry physicians are at a higher general risk of violent acts, often leading to physical injuries. The highest risk seems to be in psychiatry physicians in training, clinical psychologists, and residents of other specialties in a psychiatric rotation.^{12,13,32,33} Main causes for psychiatric aggressiveness are overcrowded wards, unsuitable conditions for patients, poor interpersonal skills,³⁴ poor training, less experience with the management of aggressive patients,³⁵ and certain psychiatric disorders, such as acute schizophrenia, alcohol and substance abuse, and bipolar disorder. The physicians in training are more exposed to this phenomenon due to: a defective training in violence management,³⁶ inadequacies regarding the identification of violent and pre-violent acts and behaviors,³⁵ difficulties in directing their attention to the anxiety and fears aroused when dealing with a violent patient,³⁷ difficulties in identifying the needs of patients with violent behaviors, the misconception that residents must “suck it up” (abuse and harassment is considered part of the job),⁴ difficulties in reporting harassment/abuse, or not knowing where to go to report it,⁴ fear of reprisal,⁴ misconception that nothing can be done to minimize this phenomenon.⁴ Differences between the aggressive acts in different specialties depends mainly upon the particularities of the patients and their medical conditions²⁴; however there are other causes that may influence the frequency of

violent behavior, amongst which are cited: alcohol drinking (increased aggressiveness), often present in the ER, type of institution (for example university clinics are significantly less exposed to physical aggression compared to general hospitals),³⁸ aggressive behaviors from the superiors that increase irritability and stress, and therefore diminish the capacity to interact with the patient,^{38,39} the severity of the disease,² type of medical care,^{27,40} type and nature of the contact with the patients^{28,41,24}. In our study psychiatry trainees are also put at a high risk, especially by patients with acute disorders. Physical aggressivity is highest in this group, but a very high percentage of psychological aggression was identified as well (second place after ED trainees).

If psychiatric patients are significantly more aggressive than their families, in pediatrics the trend is reversed, a phenomenon described in other studies as well,⁴² and most likely caused by their inability to cope with the disease of their child. The pediatric patients who were aggressive toward the medical residents were most likely teenagers or drug abusers (Pediatrics handles in Romania all patients underage).

Sexual harassment is low in our study. Most of the respondents consider that behaviors such as telling sexist jokes, whistling or even slapping the butt were not a form of sexual harassment, and should be interpreted at most as some kind of psychological aggression. Other studies, which explicitly included these behaviors in sexual harassment, gave values of over 90%.³

According to Harrington,^{43,44} the prevention of in-hospital aggression must include:

- controlling the factors that encourage the development of violent behaviors, and should be directed preferably towards those who are at a high risk of developing them— as suggested by disease (acute neurological trauma, psychiatric disorders, metabolic diseases), posture (sitting anxiously on the edge of the bed, grasping the chair or other objects intensely), speech (angry, loud, aggressive, with curses or threats), and motor activity (pacing, frequently changing body position).¹⁷ Inexperienced trainees most often miss this stage, leading to the escalation of the violent behavior.
- responding to the pre-violent behaviors mentioned above, that consist mainly of patient counseling, increasing their attention towards them, as well as psychological or pharmacological management. This stage is more obvious and the trainee is usually able, if not to contain the violent behavior, at least to ask for, and receive help.
- limiting the effects of the violent behavior, that can be achieved mostly by mechanical (physical restraints) or pharmacological means.

The fact that aggressivity is highly dependent on the specialty suggest the need of specialized courses in patient management specifically targeted toward, and personalized for the specialties at high risk (ED, Psychiatry, Pediatrics, GPs). Various authors have summarized interventions targeted toward specific groups. For example Kowalenko et al. summarized the interventions for workplace violence in the ED in individual level interventions, modification in the physical structure and security and policy level interventions.⁴⁵ Martindell summarized violence prevention training for ED staff in: staff cues (e.g. green, yellow and red lights places around the ED to indicate its security status), access control and security presence, staff training regarding hospital safety policies and procedures, aggression and violence-prediction factors, characteristics of aggressive/violent patients, verbal methods of diffusing a violent behavior, how to obtain a history from a patients with aggressive behaviors, implementation of restraining techniques, self-defense methods, pharmacological means to subdue

aggressive patients, resources available for the victims of workplace violence, and how to report a violent event.⁴⁶ The department of labor, Occupational Safety & Health Administration from the US summarized the actions useful for diminishing ED Workplace violence in: education and training (early recognition of patients with potential to become violent, techniques for de-escalation, non-violent crisis intervention, importance of getting early assistance), mandatory reporting of events, develop zero-tolerance policy, communicate zero-tolerance policy to all patients and visitor alongside communicating the consequences of any violent behavior, confine violent patients to specialized areas, maintain patient/visitor logs, develop and implement security and police plans, close monitoring of ED access, strictly restrict and enforce limits on number of visitors, develop clear procedures for investigating threats of violence, implement procedures for dealing with a violent event, review process and procedures for reviewing physical assaults.⁴⁷ Moreover, as the prevalence of the aggressive acts and their intensity is highest in the first years, these courses should be held in the first year, ideally before heavily interaction with patients will occur. According to Schwartz these courses should contain data about the causes of violence, initial encounter with violent patients, evaluation of violent patients, the psychodynamics of aggression, methods of restraint, environmental safety, and forensic issues,³⁵ all particularized upon the specialty of the trainees. For example restraint methods are extremely important in psychiatrics or EDs, whilst family psychology may be of help especially in pediatrics.

4.1. Limits of the study

The return rate of the questionnaire was around 50%. This may be explained by the fact that filling in the questionnaire was optional, the questionnaire was online and not all the participants had access to it or by the fact that the study was not directly related to the module in which it was implemented. Moreover this could be caused by a recall bias, with the respondents being more likely to have been aggressed compared with the non-respondents.

Possible bias due to the fact that the study was implemented online. This was limited by increasing the modules in which he was implemented and therefore increasing the number of participants. The specialties and gender of the students that have answered the questionnaire were not statistically different when compared to the frequencies of the specialties of all students which have participated to the classes.

Theoretically a bias caused by the fact that the questionnaire was implemented in the bioethics module may be put into question. However the courses did not deal with violence or aggression related issues.

The study was limited by the small size of some training specialties (which were grouped in the “others” category” if the total number was below 10). The large number of abusive behaviors directed towards physicians listed in the “Other” category prevents adequate analysis of the possible diversity within this category.

Little was known about the circumstances or the consequences of the aggressive acts. The results are subjective owing to the method used (anonymous questionnaires) and the ambiguity of some of the questions (which was used as the purpose was to identify the perceived not actual aggressiveness). The study analyzed the violence over the entire period of residency. As the residents were in different years, the recall period may be different as a function of year of residency, which may bias the analyses comparing prevalence as a function of years of residency.

5. Conclusions

The most severe and most easily identifiable type of aggression is psychological.

The degree of perceived aggression against physicians in training is much lower than the actual prevalence of the phenomenon. This decreased awareness leads to a failure in taking the necessary safety measures and may, subsequently, increase the severity of violent acts.

Even though some specialties are at very high risk, all medical residents should learn, early in their training, to recognize a pre-violent or a violent behavior, and to take the necessary precautions to limit them.

Ethical approval

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Conflict of interest

None.

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